



Summary of Fishery Surveys Le Claire Lake, Price County, 2014 & 2016

WDNR's Fisheries Management Team from Park Falls completed angling and electrofishing surveys in late spring 2014 to assess the abundance and size structure of gamefish and panfish populations in Le Claire Lake. We repeated similar methods in late spring and summer 2016 to gather larger samples and gain a better understanding of the fish community. Quality, preferred, and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society. "Keeper size" is our own description applied to bluegill ≥ 7 inches and black crappie ≥ 9 inches long, based on known angler behavior.

Survey Effort

Late spring 2014

On June 19th, 2014 we completed a nighttime electrofishing survey with our mini-boom shocker. We sampled all fish species around the entire shoreline (0.81 miles) in 0.4 hours. Water temperature was 68°F. The makeshift landing was unfit for launching our large electrofishing boat, so for this survey we downsized from our standard gear to our small electrofishing boat, using lower electrical output and one dipper seated on the bow.

On June 30th, 2014 Skip Sommerfeldt, WDNR Fishery Biologist and avid bass angler, targeted largemouth bass while wading the shoreline on both sides of the public access. He casted a Sinko-type bait into the lily pads and reed beds, toward deeper water, along shore and overhanging bushes, and under several docks without a bass strike. He caught no fish in 0.5 hours of fishing effort.

Late spring and summer 2016

To supplement the poor catches in 2014, our Team surveyed Le Claire Lake by non-standard protocols again in 2016. On June 7th, 2016 two experienced anglers fished Le Claire Lake for 4 hours (8 angler-hours) for bass and panfish. One angler targeted largemouth bass for the entire time, while the other focused his effort on catching mainly panfish, but also bass. They used jigs tipped with crawlers for panfish and various plastic lures for bass. All fish captured were measured and immediately released.

On August 17th, 2016 we completed a daytime electrofishing survey with our mini-boom shocker, collecting all fish species around the entire shoreline (.88 mile) in 0.50 hour. The sky was partly cloudy, and mid-day water temperature was 83°F. The dipper wore polarized sunglasses to reduce glare and help him see fish. A thick weed line of watershield and lily pads around the entire lake reduced sampling efficiency.

Habitat and Water Quality Characteristics

Le Claire Lake, once called Mud Lake, is a 27-acre drainage lake located about 15 miles southwest of Park Falls, WI. Le Tourneau Creek drains from Le Tourneau Lake, enters Le Claire Lake on the south end, and discharges on the northwest shore to the North Fork Flambeau River about 1½ miles downstream. Two of the three culvert road crossings are improperly installed, presenting seasonal obstacles or permanent barriers to two-way fish movement among these waters. At the outlet of Le Tourneau Lake the bottom of the conduit beneath Price Lakes Road is perched well above the base flow surface elevation of the stream, creating a vertical step that is impassible to native fishes because none can jump (Figure 1). In floods near-equal headwater and tailwater levels could mitigate the vertical step, but high water velocity would still limit or preclude upstream fish passage through the confined culvert. Similarly, fish may not be able to swim through the culvert beneath State Highway 70 under low flow conditions.



Figure 1. Perched culvert beneath Price Lakes Road creates an impassible barrier to two-way fish movements among Le Tourneau Lake, Le Tourneau Creek, Le Claire Lake, and Flambeau River.

Le Claire Lake's maximum depth is 14 feet and its water has a dark brown stain (Secchi depth = 3 feet). The substrate is 80% gravel and 20% muck. Near shore a dense fringe of watershield and lily pads encircles the entire perimeter. Marsh and tag alder swamp make up 40% of the shoreland, and upland hardwoods and pine occupy the rest where houses and cottages were built in moderate density. The

Town of Flambeau has a narrow and shallow access to the lake on the southwest shore at the end of Reynolds Road. The site is better suited for carry-in boat access than for launching from a trailer. With no access improvements, we presume that fishing pressure is light.

An angler's random inquiry in February 2017 led us to suspect that winterkill losses about 6-8 years earlier may have affected Le Claire Lake's fishery, prompting us to consult WDNR's fishkill database and measure late-winter dissolved oxygen levels. We found one record of winterkill (reported on March 29, 2010) affecting pike, bass, bluegill, crappies, and walleye in Le Claire Lake. Mortality was not quantified or estimated, but losses to the fish community were described as partial, rather than complete. The suspected natural cause was dissolved oxygen depletion, not infectious disease or a toxic spill. The angler who recently contacted us about poor fishing in Le Claire Lake recalled seeing thousands of dead fish of the same species listed. On February 14, 2017 in the deepest spot dissolved oxygen concentration ranged from 3.4 milligrams per liter (mg/l) just beneath the ice at two feet from the surface, but dissolved oxygen level quickly decreased to 0.46–0.40 mg/l at all depths 3 to 9 feet. Already experiencing such low oxygen levels throughout nearly the entire water column with two more months of ice cover expected, fish populations in Le Claire Lake clearly have potential to suffer winterkill losses at least occasionally and perhaps chronically. However, Le Claire enjoyed a late-season reprieve in 2017. Following a warm spell that brought about an influx of oxygenated meltwater, dissolved oxygen levels had rebounded to 6.5 and 2.3 mg/l at 2 and 3 feet deep and 0.60 mg/l at all depths 4 to 9 feet on March 13, 2017.

Summary of Results

We captured seven fish species in two angling and two electrofishing surveys. Yellow perch were the most abundant panfish, followed by black crappie and bluegill. Largemouth bass were absent in all four visits, and northern pike were the only gamefish captured or seen. Forage fish included mudminnows and shiners. The species composition of our samples points toward a fish community influenced by environmental conditions that give rise to winterkill—pike, perch, bullheads, and mudminnows can all tolerate low dissolved oxygen concentrations. We found no documentation of any authorized fish stocking at Le Claire Lake.

Northern Pike



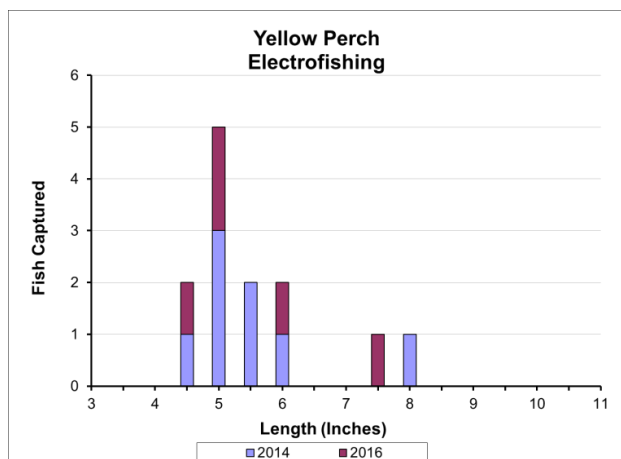
Northern pike seem to be present in trace abundance, or as transients. Nighttime electrofishing in 2014 captured one pike 18.5 inches long and angling in 2016 yielded another 19 inches long. No pike were taken by daytime electrofishing in 2016, but several large fish seen darting away as we approached were probably northern pike. Our samples were too small to draw any meaningful inferences about pike abundance and size. Our findings were similar to an angler's reported catch of only one pike in a full summer of fishing Le Claire Lake "religiously, mostly for panfish" in 2016.

Yellow Perch



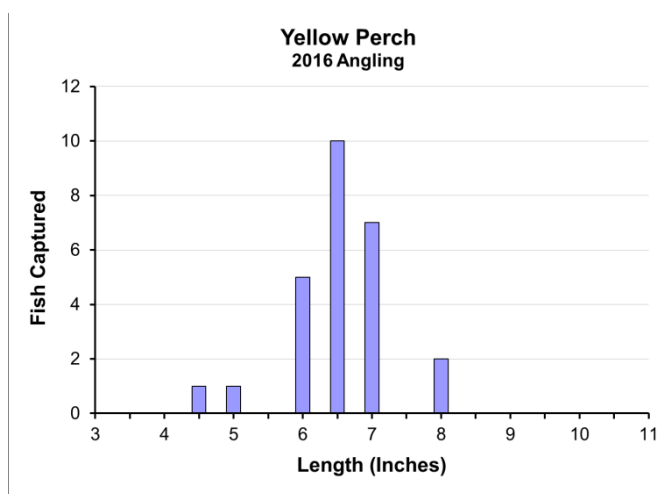
Electrofishing

	Number per mile $\geq 5''$	Number per hour $\geq 5''$	Quality Size $\geq 8''$	Preferred Size $\geq 10''$
2014	8.6	18	14%	0%
2016	4.5	8.0	0%	0%
Combined	6.5	12	9%	0%



Angling

Captured 6.3 per angler-hour $\geq 5''$	
Quality size ≥ 8 inches	8%
Preferred size ≥ 10 inches	0%



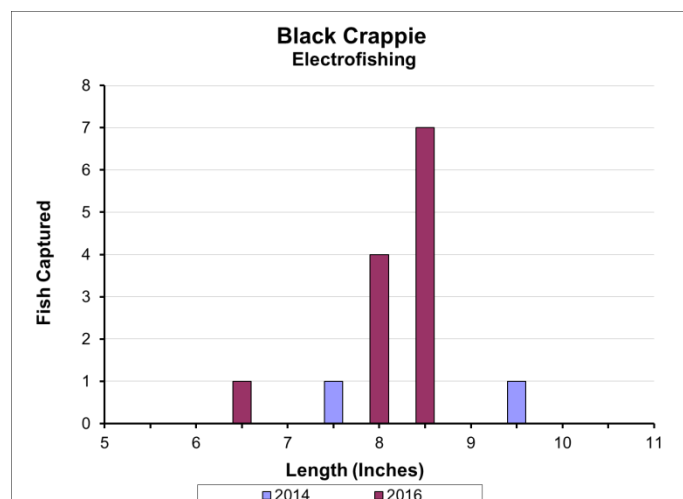
Our combined samples had more yellow perch than any other species, suggesting that perch were most abundant and perhaps dominant in the fish community. Angling captured a larger perch sample than electrofishing did in nighttime or daytime. Based on those small samples, the population's size structure would not satisfy most panfish anglers looking for a meal—we found few quality-size perch and none longer than 8.5 inches. Our electrofishing samples may not reflect the true abundance and size distribution of perch in Le Claire Lake because after spawning in early spring adults often venture to deeper water where they would not be vulnerable to capture by electrofishing near shore. Nonetheless, our assessment of perch status was consistent with the fishing experience of an avid panfish angler.

Black Crappie



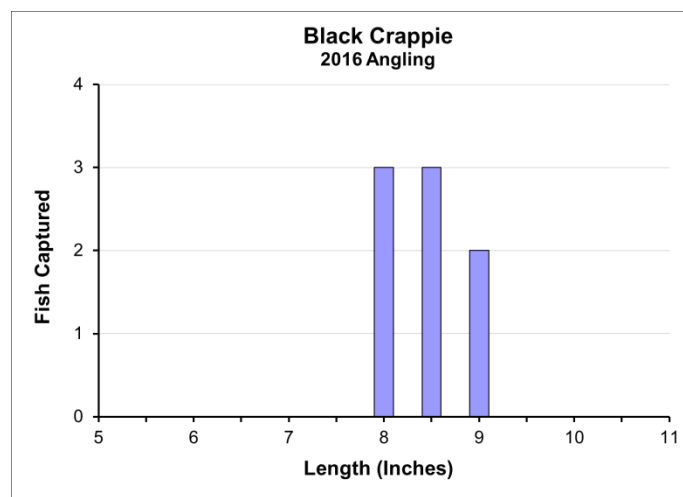
Electrofishing

	Number per mile $\geq 5''$	Number per hour $\geq 5''$	Quality Size $\geq 8''$	Preferred Size $\geq 10''$
2014	2.5	5.0	50%	0%
2016	14	24	92%	0%
Combined	8.3	16	86%	0%



Angling

Captured 2.0 per angler-hour $\geq 5''$	
Quality size ≥ 8 inches	100%
Preferred size ≥ 10 inches	0%



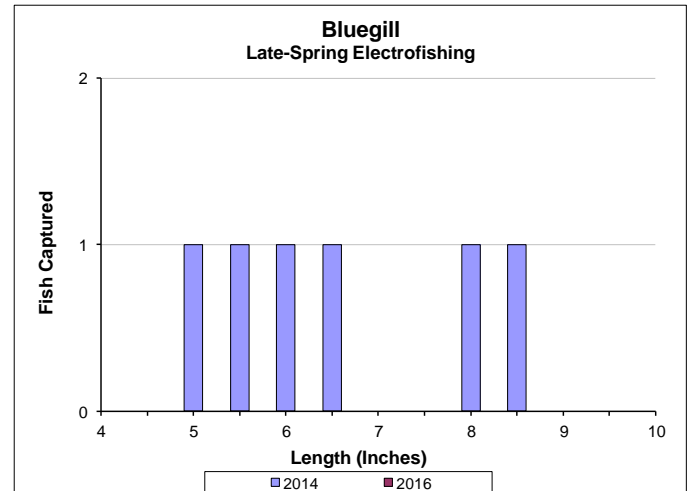
Black crappies seem to be the most promising target for anglers on Le Claire Lake, especially for those who fish there in 2017 and 2018. Our 2016 surveys suggest that a substantial year class of crappies (likely produced in 2012 or 2013, but not confirmed by age analysis) has grown to quality size. At low population abundance with ample food this cohort should achieve preferred size and possibly memorable size of 12 inches or longer. We caution that we usually rely on fall and spring fyke net catches to assess black crappie population status, and we do not know how well these non-traditional survey techniques can represent crappie abundance and size. But our confidence in this prediction was reinforced by the report from the same panfish angler who also caught many “mainly smallish” crappies in Le Claire Lake in 2016.

Bluegill



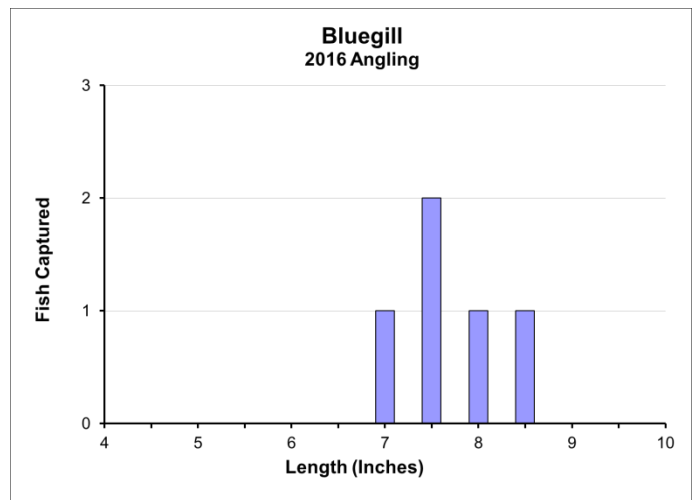
Electrofishing

	Number per mile $\geq 3''$	Number per hour $\geq 3''$	Quality Size $\geq 6''$	Keeper Size $\geq 7''$	Preferred Size $\geq 8''$
2014	7.4	15	67%	33%	33%
2016					
Combined	3.6	6.7	67%	33%	33%



Angling

Captured 1.3 per angler-hour $\geq 3''$	
Quality size ≥ 6 inches	100%
Keeper size ≥ 7 inches	100%
Preferred size ≥ 8 inches	40%



Low catch rates and decent size distribution in small samples collected by both methods suggest that bluegill abundance is low enough for the population to produce higher-than-average shares of keeper- and preferred-size fish. Non-traditional electrofishing captured no bluegills in summer 2016, but our near-standard electrofishing protocol captured six spawning adults in 2014 and angling captured five “keepers” in early June 2016. Our portrayal of bluegill status was similar in number but more conservative in size than the description we received from a panfish angler who frequents Le Claire Lake. He found a “very small amount of gills which were 7 to 10 plus inches” long. Without effective predatory control of panfish abundance, slow fishing action for large bluegills probably will not last long.

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